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BOSTON, MA 02109			2168	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/803,831	FRANK, JOHN R.	
	Examiner	Art Unit	
	HUNG Q. PHAM	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 14-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/19/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The current application has been reassigned to the examiner Hung Pham. The Office Action is a Non-Final Office Action according to the Pre-Brief Appeal Conference Decision on 02/25/2008.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 17 is rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility.

As recited in claim 10, only a document is ranked and the plurality of toponyms is related to only one document (Preamble of claim 10). Therefore, the ranking is performed for that document only based on the modified values. The modified values are unable to use for ranking documents as recited in claim 17. For the purpose of examination, the examiner assumes there is a typographical in the claim with respect to the clause documents.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 10-14, 16 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the clause at line 3, *the toponyms*, references to other items in the claim. It is unclear what item is being referenced.

Regarding claim 2, the clause *the confidences* references to other items in the claim. It is unclear what item is being referenced.

Regarding claim 3, the clause *the confidences* references to other items in the claim. It is unclear what item is being referenced.

Regarding claims 10-13, the clauses *the place of the selected (toponym, place) pair*, *the place of that (toponym, place) pair* and *the place associated with the identified toponym* references to other items in the claim. It is unclear what item is being referenced.

Regarding claim 14, the clause *said adjustment function* references to other items in the claim. It is unclear what item is being referenced.

Regarding claim 16, the clause *the derived initial boosting value* references to other items in the claim. It is unclear what item is being referenced.

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Regarding claim 18, the clauses, *the text terms* (Line 4) *the geographic terms* (Line 5) *the place* (Line 12), reference to other items in the claim. It is unclear what items are being referenced by these clauses.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-12, 17 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al. [Disambiguating Geographic Names in a Historical Digital Library].

Regarding claim 1, Smith teaches a computer-implemented method for processing a plurality of toponyms, said method comprising:

in a large corpus, identifying geo-textual correlations among readings of the toponyms within the plurality of toponyms (As disclosed by Smith, documents in the digital library are scanned for possible proper names (Page 6¹, Lines 13-14). Possible place names are disambiguated based on local context, document context and general world knowledge. Document context can be characterized as the preponderance of geographic references in an entire document. In general, if "Philadelphia" and "Harrisburg" occur in the same paragraph, a reference to "Lancaster" is more likely to be the town in Pennsylvania than to the one in England or Arizona (Page 6 Line 39-Page 7 Line 1). The teaching of Smith as discussed indicates the claimed

¹ Page 1 is the first page of the reference.

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limitation *in a large corpus*, e.g., documents in the digital library, *identifying geo-textual correlations*, e.g., identifying preponderance of geographic references such as “Lancaster”, *among readings of the toponyms within the plurality of toponyms*, e.g., “Philadelphia” and “Harrisburg”); and

for each toponym selected from the plurality of toponyms, using the identified geo- textual correlations to generate a value for a confidence that the selected toponym refers to a corresponding geographic location (As further disclosed by Smith (Page 7 Lines 7-15), all of the possible locations of all of the toponyms in the document are aggregated with weights assigned for the number of mentions of each toponym. The Smith teaching as discussed indicates the claimed limitation: *for each toponym selected from the plurality of toponyms, using the identified geo- textual correlations to generate a value*, e.g., weights assigned for the number of mentions of each toponym, *for a confidence that the selected toponym refers to a corresponding geographic location*, e.g., the purpose is to match a possible location for the toponym).

Regarding claim 3, Smith teaches all of the claimed subject matter as discussed above with respect to claim 1, Smith further discloses the step of *selecting a set of initial values for the confidences for the plurality of toponyms, and wherein using the identified geo-textual correlations to generate values for confidences involves modifying the set of initial values based on the identified geo-textual correlations within the corpus* (Page 7 Lines 7-30).

Regarding claim 4, Smith teaches all of the claimed subject matter as discussed above with respect to claim 3, Smith further discloses the step of *using a method of uniform priors* (Page 7 Lines 7-30).

Regarding claim 5, Smith teaches all of the claimed subject matter as discussed above with respect to claim 1, Smith further discloses the step of *identifying within documents in the corpus*

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toponyms that have associated geographic locations that are nearby to each other (Page 6 Line 39-Page 7 Line 1).

Regarding claim 6, Smith teaches all of the claimed subject matter as discussed above with respect to claim 1, Smith further discloses the step of *identifying spatial correlation among geographic references of toponyms that are in textual proximity* (Page 6 Line 39-Page 7 Line 1).

Regarding claim 7, Smith teaches all of the claimed subject matter as discussed above with respect to claim 6, Smith further discloses *textual proximity means within the same document* (Page 6 Line 39-Page 7 Line 1).

Regarding claim 8, Smith teaches all of the claimed subject matter as discussed above with respect to claim 6, Smith further discloses *textual proximity means within the same document or any document closely linked with said same document* (Page 6 Line 39-Page 7 Line 1).

Regarding claim 9, Smith teaches all of the claimed subject matter as discussed above with respect to claim 1, Smith further discloses the step of *processing the corpus by a named entity tagger prior to identifying the geo-textual correlations* (Page 6 Line 39-Page 7 Line 1).

Regarding claim 10, Smith teaches a computer-implemented method of generating information useful for ranking a document that includes a plurality of toponyms for which there is a corresponding plurality of (toponym,place) pairs, there being associated with each (toponym,place) pair of said plurality of (toponym,place) pairs a corresponding value for a

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confidence that the toponym of that (toponym,place) pair refers to the place of that (toponym,place) pair (), said method comprising:

for a selected (toponym,place) pair of the plurality of (toponym,place) pairs ("Philadelphia, Pennsylvania" as *a selected (toponym,place) pair* of "Philadelphia, Pennsylvania", "Philadelphia, England", "Philadelphia, Arizona"... (Page 6 Line 39-Page 7 Line 1)),

(1) determining if another toponym is present within the document that has an associated place that is geographically related to the place of the selected (toponym, place) pair (As disclosed by Smith (Page 6 Line 39-Page 7 Line 7), a toponym within a document could be associated with a plurality of possible places, e.g., "Philadelphia, Pennsylvania", "Philadelphia, England", "Philadelphia, Arizona". In the process of scanning the document, "Lancaster" as *another toponym is present within the document that has an associated place that is geographically related to the place* of "Philadelphia, Pennsylvania" as *selected (toponym, place) pair* is identified); and

(2) if a toponym is identified within the document that has an associated place that is geographically related to the place of the selected (toponym, place) pair, boosting the value of the confidence for the selected (toponym,place) pair (Page 7 Lines 20-29).

Regarding claim 11, Smith teaches all of the claimed subject matter as discussed above with respect to claim 10, Smith further discloses the step of *identifying another toponym that has an associated geographic region that encompasses the place of the selected (toponym, place) pair* (Page 6 Line 39-Page 7 Line 1).

Regarding claim 12, Smith teaches all of the claimed subject matter as discussed above with respect to claim 10, Smith further discloses the step of *identifying another toponym that has an associated place that is geographically nearby the place of the selected (toponym, place) pair* (Page 6 Line 39-Page 7 Line 1).

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Regarding claim 17, Smith teaches all of the claimed subject matter as discussed above with respect to claim 11, Smith further discloses

performing steps (1) and (2) for each (toponym,place) pair among the plurality of (toponym,place) pairs to generate modified values for the confidences for the plurality of (toponym,place) pairs (Page 6 Line 39-Page 7 Line 29); and

using the modified values to rank documents according to their relevance to a search query (FIG. 3).

Regarding claim 20, Smith teaches all of the claimed subject matter as discussed above with respect to claim 1, Smith further discloses *generating the value for a confidence that the selected toponym refers to a corresponding geographic location does not involve using information extrinsic to the corpus* (Page 7 Lines 7-15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. [Disambiguating Geographic Names in a Historical Digital Library] in view of Naughton [USP 6,240,425 B1].

Regarding claim 13, Smith teaches all of the claimed subject matter as discussed above with respect to claim 12, but not teach the step of *computing a geographical distance between the place associated with the identified toponym and the place of the selected (toponym,place) pair*.

Naughton teaches the technique of computing a geographical distance between two areas (Naughton, Col. 5 Lines 8-27).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to use the step of computing distance as taught by Naughton in Smith method in order to disambiguating geographic names in a document.

Claims 2, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank et al. [WO 01/63479 A1] in view of Smith et al. [Disambiguating Geographic Names in a Historical Digital Library].

Regarding claim 18, Frank teaches a method of evaluating relevance of a plurality of documents to a search query that includes both text and geographic place terms, said method comprising:

for a selected document among the plurality of documents,

(1) computing a textual term relevance score corresponding to the text terms in the query (Frank, Page 33 Lines 20-28);

(2) computing a geo-relevance score corresponding to the geographic terms in the query (Frank, Page 32 Line 28-Page 33 Line 19); and

(3) combining the computed textual term relevance score and the computed geo- relevance score to derive an overall relevance score for that document (Frank, Page 32 Lines 12-26),

wherein computing the geo-relevance for the selected document involves identifying a plurality of (toponym,place) pairs that is associated with the selected document (Frank, Page 28 Lines 4-14).

The missing of Frank is the claimed limitation: *for each identified (toponym, place) pair, obtaining and using a value for a confidence that the toponym of the (toponym, place) pair refers to the place.*

As disclosed by Smith, documents in the digital library are scanned for possible proper names (Page 6, Lines 13-14). Smith further discloses *for each identified (toponym, place) pair, obtaining and using a value for a confidence that the toponym of the (toponym, place) pair refers to the place* (Smith, Page 7 Lines 20-29).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to include a reference score to a place as taught by Smith into Frank method in order to disambiguating the toponyms within a document.

Regarding claim 2, Smith teaches all of the claimed subject matter as discussed above with respect to claim 1, but does not teach the step of *using the confidences generated for the plurality of toponyms to rank documents according to their relevance to a search query.*

Frank teach the step of *using the confidences generated for the plurality of toponyms to rank documents according to their relevance to a search query* (Frank, Page 32 Line 28-Page 33 Line 19).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to include the step of ranking as taught by Frank into Smith method in order to search for a particular document with spatial criteria.

Regarding claim 19, Frank and Smith, in combination, teach all of the claimed subject matter as discussed above with respect to claim 18, Smith further discloses *generating the value for a confidence that the selected toponym refers to a corresponding geographic location does not involve using information extrinsic to the corpus* (Page 7 Lines 7-15).

Allowable Subject Matter

Claims 14-16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Prior arts of record do not render obvious, nor anticipate the combination of claimed elements including the technique of *calculating an adjustment value by computing an adjustment boosting function with the computed geographical distance as an input variable, said adjustment function being monotonically decreasing for increasing values of the input variable* as recited in claim 14.

.Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG Q. PHAM whose telephone number is 571-272-4040. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIM T. VO can be reached on 571-272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private

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PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUNG Q PHAM/
Primary Examiner
Art Unit 2168

April 19, 2008